



THE UNIVERSITY *of* EDINBURGH

Edinburgh Research Explorer

Agreement attraction: Roles of active dependencies and attractor positio

Citation for published version:

Sturt, P & Kwon, N 2017, 'Agreement attraction: Roles of active dependencies and attractor positio', CUNY Sentence Processing Conference, Boston, United States, 31/03/17. <<https://osf.io/zck6x/>>

Link:

[Link to publication record in Edinburgh Research Explorer](#)

General rights

Copyright for the publications made accessible via the Edinburgh Research Explorer is retained by the author(s) and / or other copyright owners and it is a condition of accessing these publications that users recognise and abide by the legal requirements associated with these rights.

Take down policy

The University of Edinburgh has made every reasonable effort to ensure that Edinburgh Research Explorer content complies with UK legislation. If you believe that the public display of this file breaches copyright please contact openaccess@ed.ac.uk providing details, and we will remove access to the work immediately and investigate your claim.





Agreement attraction: Roles of active dependencies and attractor position

Patrick Sturt¹ Nayoung Kwon²
patrick.sturt@ed.ac.uk

¹University of Edinburgh

²Konkuk University



Background

- Subject-verb number agreement is affected by *attraction* (e.g. Wagers et al (2009, JML); Lago et al (2015, JML)):

- Processing difficulty for ungrammatical agreement is reduced in presence of matching attractor:

Easier (matching distractor) [from Lago et al, 2015]

The players that the coach **were** always praising very enthusiastically decided to leave the team.

Harder (mismatching distractor) [from Lago et al, 2015]

The player that the coach **were** always praising very enthusiastically decided to leave the team.

- In cue-based retrieval models (e.g. Lewis & Vasishth, 2015, Cognitive Science), this attraction effect is due to occasional mis-retrieval of the matching distractor (e.g. *players*).

Is attraction affected by the “active” status of a distractor?

- The widows** said that the nurse **were** reluctant to work long shifts.
- The widows** who said that the nurse **were** reluctant to work ... VERB ...

Is attraction affected by relative order of distractor & target?

- The widows** said that the nurse most definitely **were** reluctant to work ...
- The nurse who the **the widows** relied on definitely **were** reluctant to work ...

Experiment 1: Inactive, non-intervening distractor

1a. Ungrammatical: Matching distractor

The widows said that **the nurse** most definitely/ **were**/ reluctant/ to work/ long shifts.

1b. Ungrammatical: Mismatching distractor

The widow said that **the nurse** most definitely/ **were**/ reluctant/ to work/ long shifts.

1c. Grammatical

The widow said that **the nurses** most definitely/ **were**/ reluctant/ to work/ long shifts.

Experimental details (applies to all 4 Exps)

- Critical verb (*were*) identical in all three conditions
- Items adapted from Dillon et al (2013, JML)
- Design focused on attraction in ungrammatical sentences, so included only one grammatical condition
- 16 items per condition (48 items overall), so reasonable power to detect effect
- 39 participants; 48 sentences; Eyelink 1000
- Analysis concentrated on GO-PAST:
- Sum of fixation durations from first entry into the region from left to first exit to right.
- Analysis used LMER on combined region (“relucant” + “to work”), including region as a factor.

Experiment 2: Active, non-intervening distractor

1a. Ungrammatical: Matching distractor

The widows who said that **the nurse** most definitely/ **were**/ reluctant/ to work/ long shifts had become quite annoyed.

1b. Ungrammatical: Mismatching distractor

The widow said that **the nurse** most definitely/ **were**/ reluctant/ to work/ long shifts had become quite annoyed.

1c. Grammatical

The widow said that **the nurses** most definitely/ **were**/ reluctant/ to work/ long shifts had become quite annoyed.

Experiment 3: Intervening Subject distractor

1a. Ungrammatical: Matching distractor

The nurse who the widows relied on definitely/ **were**/ reluctant/ to work/ long shifts.

1b. Ungrammatical: Mismatching distractor

The nurse who the widow relied on definitely/ **were**/ reluctant/ to work/ long shifts.

1c. Grammatical

The nurses who the widow relied on definitely/ **were**/ reluctant/ to work/ long shifts.

Experiment 4: Intervening Object distractor

1a. Ungrammatical: Matching distractor

The nurse who cared for the widows definitely/ **were**/ reluctant/ to work/ long shifts.

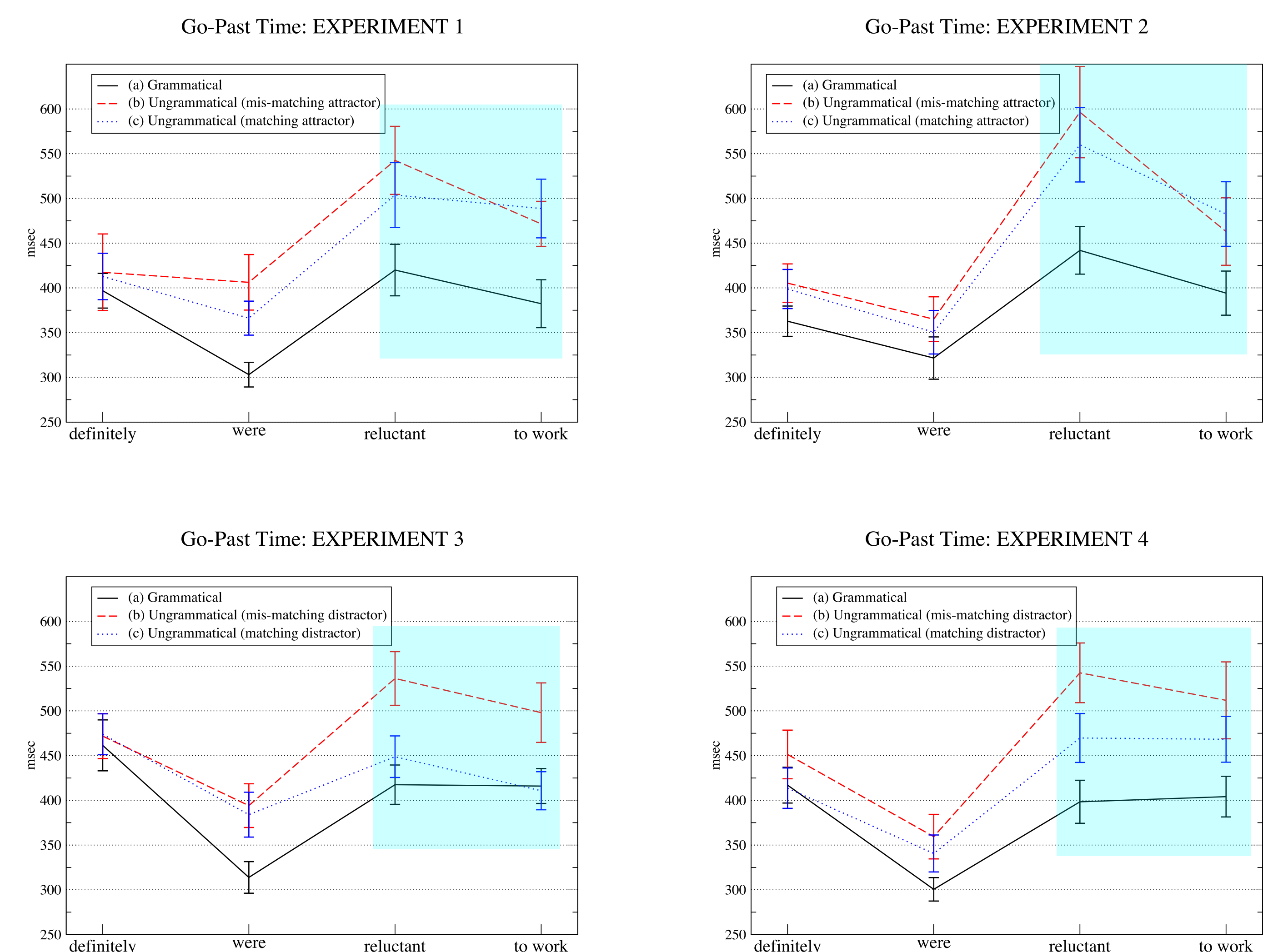
1b. Ungrammatical: Mismatching distractor

The nurse who cared for the widow definitely/ **were**/ reluctant/ ...

1c. Grammatical

The nurses who cared for the widow definitely/ **were**/ reluctant/ ...

Results and Summary



- Attraction effect (ungrammatical-matching vs. ungrammatical-mismatching) reliable only for INTERVENING distractors (Exps 3,4), and significantly greater than for NON-INTERVENING distractors (Exps 1,2)
- No difference in (null) attraction effect as function of active status of dependency (Exp1 vs. Exp2)
- Grammaticality effect (grammatical vs. ungrammatical/mismatch) didn't differ as a function of intervention or active status of distractor

Conclusions

- Attraction effect may be affected by decay of distractor's activation over time (relative to target)
- Decay appears to be unaffected by whether the distractor participates in an active dependency.

Acknowledgements

This research was supported by National Research Foundation of Korea (NRF-2014S1A2A2028232)